

## **ERWR Publications, 2007–2012 (to date)**

### **2011**

#### **ESD Peer-Reviewed Journal Articles and Book Chapters for 2011**

1. Armstrong, R., and J. Ajo-Franklin (2011), Investigating biomineralization using synchrotron based x-ray computed microtomography. *Geophysical Research Letters*, 38, L08406; DOI: 10.1029/2011GL046916. LBNL-4754E.
2. Atlas, R., and T.C. Hazen (2011), Oil biodegradation and bioremediation: A tale of the two worst spills in U.S. history. *Environmental Science & Technology*; DOI: 10.1021/es2013227. LBNL-5069E.
3. Barkouki, T.H., B.C. Martinez, B.M. Mortensen, T.S. Weathers, J.D. De Jong, T.R. Ginn, N.F. Spycher, R.W. Smith, and Y. Fujita (2011), Forward and inverse biogeochemical modeling of microbially induced calcite precipitation in half-meter column experiments. *Transport in Porous Media*, 90 (1), 23–29; DOI: 10.1007/s11242-011-9804-z, 1–17.
4. Beller, H.R., T.C. Legler, and S.R. Kane. (2011) Genetic manipulation of the obligate chemolithoautotrophic bacterium *Thiobacillus denitrificans*. In: *Microbial Systems Biology: Methods and Protocols*, A. Navid, ed., Humana Press, Methods in Molecular Biology series (in press). LBNL-5097E.
5. Beller, H.R., E.-B. Goh, and J.D. Keasling (2011), Definitive alkene identification need for in vitro studies with Ole (olefin biosynthesis) proteins. *Journal of Biological Chemistry* (letter), 286 (26), le11. LBNL-5054E.
6. Brodie, E.L., D.C. Joyner, B. Faybushenko, M.E. Conrad, C. Rios-Velazquez, B. Mork, R. Kelley, A. Willet, S. Koenigsberg, D. Herman, M.K. Firestone, and T.C. Hazen (2011), Microbial community response to addition of polylactate compounds to stimulate hexavalent chromium reduction in groundwater. *Chemosphere*, 85 (4), 660–665; DOI: 10.1016/j.gca.2011.09.033. LBNL-4905E.
7. Campbell, K.M., J.A. Davis, J. Bargar, D. Giammar, R. Bernier-Latmani, R. Kukkadapu, K.H. Williams, H. Veramani, K.U. Ulrich, J. Stubbs, S. Yabusaki, L. Figueroa, E. Lesher, M.J. Wilkins, A. Peacock, and P.E. Long (2011), Composition, stability, and measurement of reduced uranium phases for groundwater bioremediation at Old Rifle, CO. *Applied Geochemistry*, 26, Supplement: S, S167–169; DOI: 10.1016/j.apgeochem.2011.03.094.
8. Cantarel, B.L., A.R. Erickson, N.C. VerBerkmoes, B.K. Erickson, P.A. Carey, C. Pan, M. Shah, E.F. Mongodin, J.K. Jansson, C.M. Fraser-Liggett, and R.L. Hettich (2011), Strategies for metagenomic-guided whole-community proteomics of complex microbial environments. *PLoS ONE*, 6 (11), e27173. DOI:10.1371/journal.pone.0027173.
9. Chakraborty, R., T.C. Hazen, D.C. Joyner, K. Kusel, M.E. Singer, J. Sitte, and T. Torok (2011), Use of immunomagnetic separation for the detection of *Desulfovibrio vulgaris* from environmental samples. *Journal of Microbiological Methods*, 86 (2), 204–209; DOI:10.1016/j.mimet.2011.05.005. LBNL-4925E.
10. Chhabra, S.R., M.P. Joachimiak, C.J. Petzold, G.M. Zane, M.N. Price, S. Gaucher, S.A. Reveco, V. Fok, A.R. Johanson, T.S. Batth, M. Singer, J.M. Chandonia, D. Joyner,

- T.C. Hazen, A.P. Arkin, J.D. Wall, A.K. Singh, and J.D. Keasling (2011), Towards a rigorous network of protein-protein interactions of the model sulfate reducer *Desulfovibrio vulgaris Hildenborough*. PLoS One, 6(6), e21470; DOI:10.1371/journal.pone.0021470. LBNL-5181E.
11. Chhabra, S. R., G. Butland, D. Elias, J.-M. Chandonia, V. Fok, T. Juba, A. Gorur, S. Allen, C.-M. Leung, K. Keller, S. Reveco, G. Zane, E. Semkiw, R. Prathapam, B. Gold, M. Singer, M. Ouellet, E. Sazakal, D. Jorgens, M. Price, E. Witkowska, H. Beller, T.C. Hazen, M. Biggin, M. Auer, J. Wall, and J. Keasling (2011), Generalized schemes for high throughput manipulation of the *Desulfovibrio vulgaris Hildenborough* genome. Applied & Environmental Microbiology, 77 (22); DOI: 10.1128/AEM.05495-11. LBNL-5207E.
  12. Cooper, M., M.T. La Duc, A. Probst, P. Vaishampayan, C. Stam, J.N. Benardini, Y.M. Piceno, G.L. Andersen, and K. Venkateswaran (2011), Assessing the cleanliness of surfaces: Innovative molecular approaches vs. standard spore assays. Applied and Environmental Microbiology, 77 (15), 5438–5444; DOI:10.1128/AEM.00192-11. LBNL-4946E.
  13. DeAngelis, K.M., M. Allgaier, Y. Chavarria, J.L. Fortney, P. Hugenholtz, B. Simmons, K. Sublette, W.L. Silver, and T.C. Hazen (2011), Characterization of trapped lignin-degrading microbes in tropical forest soil. PLoS One, 6 (4), e19306; DOI:10.1371/journal.pone.0019306. LBNL-4834E.
  14. DeAngelis, K.M., C.H. Wu, H.R. Beller, E.L. Brodie, R. Chakraborty, T.Z. DeSantis, J.L. Fortney, T.C. Hazen, S.R. Osman, M.E. Singer, L.M. Tom, and G.L. Andersen (2011), PCR amplification-independent methods for detection of microbial communities by the high-density microarray PhyloChip. Applied and Environmental Microbiology, 77 (18), 6313–6322; DOI: 10.1128/AEM.05262-11. LBNL-5336E.
  15. DeSantis, T.Z., K. Keller, U. Karaoz, A.V Alekseyenko, N.N.S. Singh, E.L Brodie, Z. Pei, G.L Andersen, and N. Larsen (2011), Simrank: Rapid and sensitive general-purpose k-mer search tool. BMC Ecology, 11 (11); DOI: 10.1186/1472-6785-11-11. LBNL-4596E.
  16. Dohnalkova, AC., M.J. Marshall, B.W. Arey, K.H. Williams, E.C. Buck, and J.K. Fredrickson (2011), Imaging hydrated microbial extracellular polymers: Comparative analysis by electron microscopy. Applied and Environmental Microbiology, 77 (4), 1254–1262; DOI:10.1128/AEM.02001-10. LBNL-4861E.
  17. Finsterle, S.A., and M.B. Kowalsky (2011), A truncated Levenberg-Marquardt algorithm for the calibration of highly parameterized nonlinear models. Computers and Geosciences, 37 (6), 731–738; DOI:10.1016/j.cageo.2010.11.005. LBNL-4256E.
  18. Finsterle, S., and Y. Zhang (2011), Solving iTOUGH simulation-optimization problems using the PEST protocol. Environmental Modelling and Software, 26, 959-968. LBNL-4410E.
  19. Flores-Orozco, A., K.H. Williams, P.E. Long, S.S. Hubbard and A. Kemna (2011), Using spectral induced polarization (SIP) to infer biogeochemical processes associated with bioremediation of a uranium-contaminated aquifer. JGR-Biogeosciences, 116, G03001; DOI:10.1029/2010JG001591. LBNL-4766E.
  20. Gaines, D.P., G.S. Baker, S.S. Hubbard, D. Watson, S. Brooks, and P. Jardine (2011), Detecting perched water bodies using surface-seismic time-lapse travelttime tomography. In: Advances in Near Surface Seismology and Ground-Penetrating

- Radar, Chapter 25, R.D. Miller, J.H. Bradford, and K. Holliger, eds., Society of Exploration Geophysicists, Tulsa, OK; DOI: 10.1190/1.9781560802259.ch25.
- 21. Gladden, J.M., M. Allgaier, C. S. Miller, T.C. Hazen, J.S. VanderGheynst, P. Hugenholtz, B.A. Simmons, and S.W. Singer (2011). Glycoside hydrolase activities of thermophilic bacterial consortia adapted to switchgrass. *Applied and Environmental Microbiology*, 77 (16), 5804–5812. LBNL-4911E.
  - 22. Goh, E.-B., E.E.K. Baidoo, J.D. Kiesling, and H.R. Beller (2012), Engineering of bacterial methyl ketone synthesis for biofuels. *Applied and Environmental Microbiology*, 78 (1), 70–80; DOI: 10.1128/AEM.06785-11. LBNL-5120E.
  - 23. Goldfarb, K.C., U. Karaoz, C.A. Hanson, C.A. Santee, M.A. Bradford, K.K. Treseder, M.D. Wallenstein, and E.L. Brodie (2011), Differential growth responses of soil bacterial taxa to carbon substrates of varying chemical recalcitrance. *Frontiers in Terrestrial Microbiology*, 2 (94); DOI: 10.3389/fmicb.2011.00094. LBNL-4963E.
  - 24. Graham, D.E., M.D. Wallenstein, T. A. Vishnivetskaya, M.P. Waldrop, T.J. Phelps, S.M. Pfiffner, T.C. Onstott, L.G. Whyte, E.M. Rivkina, D.A. Gilichinsky, D.A. Elias, R Mackelprang, N.C. VerBerkmoes, R.L. Hettich, D. Wagner, S.D. Wullschleger, and J.K. Jansson (2011), Microbes in thawing permafrost: The unknown variable in the climate change equation. *The ISME Journal*, DOI: 10.1038/ismej.2011.163.
  - 25. Hay, M.B.; D.L. Stoliker, J.A. Davis, and J.M. Zachara, (2011), Characterization of the intragranular water regime within subsurface sediments: Pore volume, surface area, and mass transfer limitations. *Water Resources Research*, 47, W10531; DOI: 10.1029/2010WR010303.
  - 26. Hubbard, S.S., and N. Linde, (2011) Hydrogeophysics. In: *Treatise on Water Science*, P. Wilderer (ed.), vol. 1, pp. 401–434, Oxford: Academic Press. LBNL-3341E.
  - 27. Hubbard, S.S. (2011), Contaminant remediation. In: *Subsurface Sensing*, A.S. Turk, K.A. Hocaglu, and A.A. Vertiy, eds., Chapter 9.4, John Wiley, New York. LBNL-3092E.
  - 28. Jansson, J.K. (2011), Towards “*tera terra*”: Terabase sequencing of terrestrial metagenomics. *Microbe*, July 2011. LBNL-5191E.
  - 29. Jansson, J.K. J.D. Neufeld, M.A. Moran, and J.A. Gilbert (2011), Omics for understanding microbial community dynamics. *Environmental Microbiology*, DOI: 10.1111/j.1462-2920.2011.02518x.
  - 30. Jansson, J.K. (2011), Deep metagenome sequencing illuminates rapid permafrost response to thaw. *Nature Letter* (in press), 2010-12-16310B.
  - 31. Kappler, K., and E. Gasperikova (2011), A hybrid method for UXO vs. non-UXO discrimination. *Journal of Environmental and Engineering Geophysics*, 16 (4), 177–189. LBNL-5215E.
  - 32. Kerkhof, L., K.H. Williams, P.E. Long, and L. McGuinness (2011), Phase preference by acetate-utilizing bacteria during DNA replication at the Rifle, CO, Integrated Field Research Challenge Site. *Environmental Science & Technology*, 45 (4), 1250–1256; DOI: 0.1021/es102893r. LBNL-4853E.
  - 33. Lea, A.S., S.R. Higgins, K.G. Knauss, and K.M. Rosso (2011), A high-pressure atomic force microscope for imaging in supercritical carbon dioxide. *Review of Scientific Instruments*, 82 (4); DOI:10.1063/1.3580603. LBNL-5212E.
  - 34. Kostka, J.E., O. Prakash, W.A. Overholt, S. Green, G. Freyer, A. Canion, J. Delgadio, N. Norton, T.C. Hazen, and M. Huettel (2011). Hydrocarbon-degrading bacteria and the bacterial community response in Gulf of Mexico beach sands impacted by the

- Deepwater Horizon oil spill. *Applied Environmental Microbiology*, 77 (22), 7962–7974; DOI: 10.1128/AEM.05402-11.
- 35. Kowalsky, M.B., E. Gasperikova, S. Finsterle, D. Watson, G. Baker, and S.S. Hubbard (2011), Coupled modeling of hydrogeochemical and electrical resistivity data for exploring the impact of recharge on subsurface contamination. *Water Resources Research*, 47, W02509; DOI:10.1029/2009WR008947. LBNL-4748E.
  - 36. Lambot, S., E. Pettinelli, S.S. Hubbard, E.C. Slob, E. Bloem, and V.E.A. Post (2011), Hydrogeophysics. In: *Subsurface Sensing*, A.S. Turk, K.A. Hocaoglu, and A.A. Vertiy, eds., Chapter 9.3, John Wiley, New York.
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  - 38. Li, L., N. Gawande, M.B. Kowalsky, C. Steefel, and S.S. Hubbard (2011), Physicochemical heterogeneity controls on uranium bioreduction rates at the field scale. *Environmental Science and Technology*, 45 (23), 9959–9966; DOI: 10.1021/es201111y.
  - 39. Liang, Y., J.D. Van Nostrand, A.D. Peacock, Y. Deng, P.E. Long, L. Wu, Z. He, T.C. Hazen, G. Li, and J. Zhou (2011), Microarray-based functional analysis of microbial communities for in-situ uranium reduction under sulfate-reducing vs. Fe-reducing conditions. *ISME Journal* (in press).
  - 40. Liu, P., R.J. Meagher, Y.K. Light, S. Yilmaz, R. Chakraborty, A.P. Arkin, T.C. Hazen, and A.K. Singh (2011), Microfluidic fluorescence in situ hybridization and flow cytometry ( $\mu$ FISH). *Lab on a Chip*, 11 (16), 2673–2679.
  - 41. Lu, Z., Y. Deng, J.D. Van Nostrand, Z. He, J. Voordeckers, A. Zhou, Y.-J. Lee, O.U. Mason, E. Dubinsky, K. Chavarria, L. Tom, J. Fortney, R. Lamendella, J.K. Jansson, P. D'haeseleer, T.C. Hazen, and J. Zhou (2011), Microbial gene functions enriched in the Deepwater Horizon deep-sea oil plume. *ISME Journal*, DOI: 10.1038/ismej.2011.91. LBNL-5055E.
  - 42. Mackelprang, R., M.P. Waldrop, K.M. DeAngelis, M.M. David, K.L. Chavarria, S.J. Blazewicz, E.M. Rubin, and J.K. Jansson (2011), Metagenomic analysis of a permafrost microbial community reveals a rapid response to thaw. *Nature*, 480, 368–371; DOI: 10.1038/nature10576. LBNL-5155E.
  - 43. Mason, O.U., T.C. Hazen, S. Borglin, P. Chain, E. A. Dubinsky, J. Fortney, J. Han, J. Hultman, R. Lamendella, R. Mackelprang, L. M. Tom, S. G. Tringe, T. Woyke, J. Zhou, E. M. Rubin, and J.K. Jansson (2011), Multi-omics approach reveals a chemotactic response by dominant, aliphatic hydrocarbon degrading bacteria to the Deepwater Horizon deep-sea plume. *Nature* (in press).
  - 44. Mason, O.U., and T.C. Hazen (2011), New insights into microbial responses to oil spills from the Deepwater Horizon incident. *SIM News*, 16, 60–65. LBNL-5048E.
  - 45. Mayali, X., P.K. Weber, E.L. Brodie, S. Mabery, P.D. Hoeprich, and J. Pett-Ridge (2011), High-throughput isotopic analysis of RNA microarrays to quantify microbial resource use. *ISME Journal*, DOI: 10.1038/ismej.2011.175.
  - 46. Men, Y., H. Feil, N.C. VerBerkmoes, M.B. Shah, D.R. Johnson, P.K.H Lee, K.A. West, S.H. Zinder, G.L. Andersen, and L. Alvarez-Cohen (2011), Sustainable syntrophic growth of *Dehalococcoides ethenogenes* strain 195 with *Desulfovibrio vulgaris*

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  - 50. Nelson, T.A., S. Holmes, A.V. Alekseyenko, M. Shenoy, T. DeSantis, C.H. Wu, G.L. Andersen, J. Winston, J. Sonnenburg, P.J. Pasricha, and A. Spormann (2011), PhyloChip microarray analysis reveals altered gastrointestinal microbial communities in a rat model of colonic hypersensitivity. Neurogastroenterology & Motility, 23 (2), 169–177; DOI: 10.1111/j.1365-2982.2010.01637.x. LBNL-4351E.
  - 51. Paszczynski, A.J., R. Paidisetti, A.K. Johnson, R.L. Crawford, F.S. Colwell, T. Green, M. Delwiche, H. Lee, D. Newby, E.L. Brodie, and M. Conrad (2011), Proteomic and targeted qPCR analyses of subsurface microbial communities for presence of methane monooxygenase. Biodegradation, 22 (6): 1045–1059, DOI: 10.1007/s10532-011-9462-4.
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  - 55. Singer, S. W., A. P. Reddy, J. M. Gladden, H. Guo, T.C. Hazen, B. A. Simmons, and J. S. VanderGheynst (2011), Enrichment, isolation and characterization of fungi tolerant to 1-ethyl-3-methylimidazolium acetate. Journal of Applied Microbiology, 110, 1023–1031. LBNL-4924E.
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  - 57. Stewart, B.D., R.T. Amos, P.S. Nico, and S. Fendorf (2011), Influence of uranyl speciation and iron oxides on uranium biogeochemical redox reactions. Geomicrobiology Journal, 28, 444–456; DOI: 10.1080/01490451.2010.507646. LBNL-3549E.

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61. Van Nostrand, J.D., L. Wu, W.M. Wu, A. Huang, T.J. Gentry, Y. Deng, J. Carley, S. Carroll, Z. He, B. Gu, J. Luo, C.S. Criddle, D.B. Watson, P.M. Jardine, T.L. Marsh, J.M. Tiedje, T.C. Hazen, and J. Zhou (2011), Dynamics of microbial community composition and function during in-situ bioremediation of a uranium-contaminated aquifer. *Applied and Environmental Microbiology*, 77, 3860–3869. LBNL-4960E.
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63. Weber, K.A., J.C. Thrash, J.I. Van Trump, L.A. Achenbach, and J.D. Coates (2011), Environmental and taxonomic bacterial diversity of anaerobic uranium(IV) bio-oxidation. *Applied and Environmental Microbiology*, 77 (13), 4693-4696; DOI: 10.1128/AEM.02539-10.
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65. Williams, K.H., P.E. Long, J.A. Davis, C.I. Steefel, M.J. Wilkins, A.L. N'Guessan, L. Yang, D. Newcomer, F.A. Spane, L.J. Kerkhof, L. McGuinness, R. Dayvault, and D.R. Lovely (2011), Acetate availability and its influence on sustainable bioremediation of uranium-contaminated groundwater. *Geomicrobiology Journal*, 28 (5–6), 519–539; DOI: 10.1080/01490451.2010.520074. LBNL-4622E.
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68. Yabusaki, S.B., Y. Fang, K.H. Williams, C.J. Murray, A.L. Ward, R.D. Dayvault, S.R. Waichler, D.R. Newcomer, F.A. Spane, and P.E. Long (2011). Variably saturated flow and multicomponent biogeochemical reactive transport modeling of a uranium bioremediation field experiment. *Journal of Contaminant Hydrology*, 126 (3–4), 271–290; DOI: 10.1016/j.jconhyd.2011.09.002.

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## 2010

### ESD Peer-Reviewed Journal Articles, Books, and Book Chapters for 2010

1. Allgaier, M., A. Reddy, J. I. Park, N. Ivanova, P. D'haeseleer, S. Lowry, R. Sapra, T.C. Hazen, B.A. Simmons, J. S. VanderGheynst, and P. Hugenholtz (2010), Targeted discovery of glycoside hydrolases from a switchgrass-adapted compost community. LBNL-3058E. *PLoS One*, 5 (1), e8812.
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## **2009**

### **ERWR Peer-Reviewed Journal Articles, Books, and Book Chapters for 2009**

1. Allgaier, M., A. Reddy, J. I. Park, N. Ivanova, P. D'haeseleer, S. Lowry, R. Sapra, T.C. Hazen, B.A. Simmons, J. S. VanderGheynst, and P. Hugenholtz, Targeted discovery of glycoside hydrolases from a switchgrass-adapted compost community. LBNL-3058E. *PLoS One*, 5 (1), e8812 (published online 2009), 2010.
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